REBUILD ATLANTA
ENERGY AUDITOR'S REPORT
ATLANTA CIVIC CENTER

Prepared: May 10, 2004
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REPORT PREFACE

The information contained in this report consists of findings and recommendations conducted by the City of Atlanta's Energy Conservation Program through the Rebuild Atlanta initiative. The following information was gathered during a walk-through type audit designed to assess the general condition of the facility with an emphasis on discovering energy efficiency opportunities. All related observations and recommendations are based on the best available knowledge of the auditors and should not be considered conclusive, but rather an indication of building conditions. Any actions taken should be done so with the independent advice of experts. The Energy Conservation Program will be pleased to assist the Department of Parks, Recreation & Cultural Affairs in coordinating this technical assistance.

Building Summary

Atlanta Civic Center
395 Piedmont Ave.
Atlanta, Georgia 30308

Year Built:	1967
Building Size:	159,000 square feet (five stories)
Occupants:	up to 4600 in auditorium, 7-10 FTE
Operating Schedule:	Variable
Electricity Cost (2003):	$229,262
Electricity Usage (2003):	3,076,631 kWh
Cost Per Square Foot:	$1.44/ft^2
Usage Per Square Foot:	19.34 kWh/ft^2

Recommended Items

This section focuses on items that will be pursued by the Energy Conservation Program in cooperation with your department. Follow-up actions are outlined in more detail in Appendix A.

- Lighting
    - Replace all exit signs with LED exit signs when existing signs fail
    - Retrofit all incandescent downlamps with compact fluorescent lamps
- Heating, Ventilation & Cooling
    - Replace chiller and cooling tower with high efficiency, ozone-friendly models
    - Replace pumps/motors with high efficiency models
- Domestic Water
    - Consider replacing restroom fixtures with low-flow/waterfree fixtures

Reported Items

This section contains items that were noted during the energy audits but do not fall under the scope of the Energy Conservation Program. Additional detail on these items is provided in Appendix B.

There are no items to report in this section.

Narrative

As a whole, the Atlanta Civic Center is operating in good condition and the typical low- and no-cost upgrades that may be performed in many buildings to increase energy efficiency do not present themselves to a similar degree. There exists the potential to increase the operational efficiency of the Civic Center mainly through upgrades in mechanical equipment and minor repairs.

General Observations

The Atlanta Civic Center began operation in 1967 and houses the largest performing arts stage in the Southeast, seating 4600 at maximum capacity. The facility also houses support facilities for the stage – dressing rooms, restrooms, projection booth, etc. as well as concessions stands, meeting space and office space.

HVAC System

The primary HVAC system for Atlanta Civic Center is a chilled water system with electric reheat and includes chillers (2), associated pumps (7) and built-up air-handling units (17). The cooling tower is located on the roof accessible through the fourth floor. Both chillers are original Carrier units installed when the building was built and at least one chiller and the cooling tower, also original, are in urgent need of replacement.

The office space, in which the full time employees spend their working hours, is conditioned by separate rooftop units.

The main mechanical room is on the ground level and houses the chillers, pumps, and electrical switchgear. The controls are a manual type and located in the basement. Both areas are well maintained. The HVAC system is well understood by the facility supervisor and is controlled in accordance with the facility needs, which are variable. Prior to an event, the facility supervisor will manually start the primary cooling system, usually one chiller, unless a full house is expected on a hot summer day, in which case both chillers are needed. The facility supervisor will shut the system down following the event.

Lighting System

The lighting of the current facility consists mostly of 34 Watt, 2 bulb fixtures with the exception of the theatre space, which uses dimmable incandescent fixtures. With advances in fluorescent lighting technology, there may be more energy efficient lighting options that provided desirable color rendition and controllability in the near future. The EXIT signs can be replaced with LED type fixtures upon failure, reducing energy use and maintenance requirements. The facility supervisor is diligent about lighting control, ensuring that lighting use is minimized, particularly in the theatre space.

Domestic Water System

There exists some potential for water savings at the Atlanta Civic Center as most fixtures are original to the facility and have not been upgraded to include low-flow fixtures that are now installed in new construction.

Goals

The Atlanta Civic Center is a well-maintained and operated facility and as mentioned, presents few opportunities for no and low cost energy efficiency improvements. However due to the size of this facility and the condition of the cooling equipment, replacement of selected items is an urgent priority to prevent disruption of operations.

Update

The Atlanta Civic Center Chiller replacement has begun and is scheduled to be completed by February 2005. The selected chiller is expected to reduce energy use by approximately 50% when compared with existing equipment. Additionally the system is equipped with a variable frequency drive, compared to the single speed controls on the existing system. This will enable the facility supervisor to run the system at part-load, saving additional energy. The chiller also uses an ozone friendly refrigerant, enhancing the environmental benefits of this project.

Conclusion

The Atlanta Civic Center offers the potential to become a marquee facility in terms of energy efficiency and excellence in operations through selected capital upgrades and continued attention to facility maintenance and improvement. The facility supervisor and Civic Center Director have proven enthusiastic and motivated partners in the Rebuild Atlanta initiative.

Appendix A: Recommended Actions (Follow-up Action Planned)

Lighting

Purchase replacement lighting fixtures (lamps, ballasts, luminaires, exit signs, etc.) in accordance with the *City of Atlanta Lighting Retrofit Guidelines*.

Heating, Ventilation & Cooling

Replace chiller and cooling tower with high efficiency, variable frequency drive models

Appendix B: Reported Items (No Follow-up Action Planned)

HVAC

A building tune-up is recommended to restore a building's mechanical and lighting systems to their design intent while adapting to any changes that have taken place in order to maximize operating efficiency. In a building the size of the Civic Center, a tune-up should be performed at least once a decade to maintain optimum performance. A scope of services for a building tune-up ("retro-commissioning") can be developed by the Energy Conservation Program in cooperation with the Department of Parks, Recreation & Cultural Affairs.

Domestic Water

Consider replacing restroom fixtures with low-flow models

Appendix C: Additional Resources

Lighting

Please see separate attachments, *City of Atlanta Lighting Retrofit Guidelines*, for information on how to conduct a building lighting upgrade and for product specifications.

Operations & Maintenance

Please see the separate attachment, *Equipment Replacement Guidelines: Variable Frequency Drive*, for equipment upgrades options when replacing equipment that has reached the end of its service life.

Appendix D: 12 Month Utility Data

The Table on the following page shows the electricity use, cost and peak demand for the year 2003. The top graph, labeled "Cost vs. Usage" shows the relationship between electricity consumption and cost for the year 2003. The bottom graph, labeled "Cost vs. Demand" shows the relationship between cost and peak demand for the year 2003.

Month	kWh	Peak kW	Cost
Jan-03	421,402	1425	$25,700
Feb-03	407,252	1593	$25,327
Mar-03	314,837	1556	$22,804
Apr-03	206,252	1398	$19,762
May-03	212,060	759	$20,045
Jun-03	224,007	768	$20,392
Jul-03	190,793	825	$18,455
Aug-03	229,062	879	$19,511
Sep-03	196,190	720	$18,624
Oct-03	185,138	903	$11,348
Nov-03	180,881	1221	$11,312
Dec-03	308,757	1284	$15,982
Total	**3,076,631**	**N/A**	**$229,262**